

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A resource manager for a security system network comprising:

one or more devices for collecting and/or managing data from an environment;

a flow information service storing in a computer readable medium descriptions of media flows in one or more networks, including source device and network, destination device and network, media flow type, and required bandwidth;

one or more users that submit operation requests for the data; and

a controller that receives ~~[[the]]~~ operation requests, caches and determines load characteristics of the one or more devices based on the descriptions of media flows, and allows users to dynamically changes an allocation policy of one or more devices to the operation requests according to ~~[[allocates the]]~~ the combination of weighted score of user defined data placement preference, load characteristics, and network communication cost associated with the media flows.

2. (Currently Amended) ~~[[A]]~~The resource manager according to claim 1 wherein the controller generates allocation requests that attempt to allocate the operation requests to the devices in response to the operation requests.

3. (Currently Amended) ~~[[A]]~~The resource manager according to claim 1 wherein the controller generates a graphical representation of the load characteristics.

4. (Currently Amended) The resource manager according to claim 1 wherein the load characteristics include availability of the one or more devices.

5. (Currently Amended) The resource manager according to claim 1 wherein the load characteristics include media flow data of the one or more devices.

6. (Original) The resource manager according to claim 5 wherein the media flow data includes a source identifier, a media format, a media bandwidth requirement, a multi-cast address, and a service identifier.

7. (Currently Amended) The resource manager according to claim 1 wherein the load characteristics include location of the one or more devices, availability of the devices, and current media flow of the devices.

8. (Currently Amended) The resource manager according to claim 1 wherein the one or more devices include ~~[[a]]~~the camera that collects multimedia data.

9. (Original) The resource manager according to claim 8 wherein the camera streams the multimedia data in one or more media formats.

10. (Original) The resource manager according to claim 8 further comprising a multimedia recorder that records the multimedia data.

11. (Original) The resource manager according to claim 10 wherein the multimedia recorder plays the multimedia data in response to the operation requests.

12. (Original) The resource manager according to claim 10 further comprising an analyzer server that collects meta-data from the multimedia data.

13. (Original) The resource manager according to claim 12 wherein the analyzer server collects the meta-data directly from the camera.

14. (Original) The resource manager according to claim 12 wherein the analyzer server collects the meta-data from the multimedia recorder.

15. (Original) The resource manager according to claim 10 further comprising a meta-data server that stores the meta-data.

16. (Original) The resource manager according to claim 15 wherein the operation requests include searching the meta-data server for meta-data.

17. (Original) The resource manager according to claim 1 wherein the operation requests include record requests, analysis requests, play requests, and search requests.

18. (Original) The resource manager according to claim 17 wherein the record requests include at least one of a source camera identifier, a media recording format, a recording purpose, and a duration of recording.

19. (Currently Amended) The resource manager according to claim 17 wherein the analysis request includes ~~[[a]]~~the source camera identifier and a duration of analysis.

20. (Original) The resource manager according to claim 17 wherein the analysis request includes an identity and a location of a multimedia file.

21. (Currently Amended) The resource manager according to claim 17 wherein the play request includes ~~[[an]]~~the identity and a location of a multimedia file.

22. (Original) The resource manager of claim 1 further comprising an Internet gateway server that connects the users to the security system network.

23. (Original) The resource manager of claim 1 wherein the controller generates a schedule for the requests based on the load characteristics.

24. (Original) The resource manager of claim 1 wherein the controller prioritizes the operation requests.

25. (Currently Amended) The resource manager of claim 1 wherein the operation requests are generated by one of ~~a user~~the one or more users, an alarm, and a scheduled event.

26. (currently amended) A resource manager for a security system network comprising:

a camera that collects multimedia data;

a multimedia recorder that stores the multimedia data;

an analyzer that extracts meta-data from the multimedia data;

a flow information service storing in a computer readable medium descriptions of media flows in one or more networks, including source device and network, destination device and network, media flow type, and required bandwidth;

one or more users that submit operation requests for the data; and

a controller that receives the operation requests, communicates with the camera, the multimedia recorder, and the analyzer to determine load characteristics based on the descriptions of media flows, and allows users to dynamically changes an allocation policy of one or more devices to ~~[[allocates]]~~ the operation requests according to the combination of weighted score of user defined data placement preference, load characteristics, and network communication cost associated with the media flows.

27. (Currently Amended) A method for allocating resources in a security system network comprising:

collecting data from an environment at one or more network resources;

storing in a computer readable medium descriptions of media flows in one or more networks, including source device and network, destination device and network, media flow type, and required bandwidth;

submitting requests for the data from one or more users;

determining, based on the descriptions of media flows, load characteristics of the one or more network resources at a controller; and

allocating the one or more network resources to the requests according to the load characteristics.

28. (Original) The method of claim 27 wherein allocating resources includes generating a schedule for the requests based on the load characteristics.

29. (Currently Amended) The method of claim 28 wherein generating ~~[[a]]~~the schedule includes prioritizing the requests based on network criteria.

30. (Currently Amended) The method of claim 27 wherein allocating the one or more network resources includes determining a set of candidate devices, assigning scores to each candidate device in the set, and communicating with the candidate devices according to the scores.

31. (Currently Amended) The method of claim 30 further comprising calculating the scores according to a current load, a location on a [[the]] network, and existing media flows.

32. (Original) The method of claim 27 wherein communicating with the candidate devices includes determining availability of the candidate devices.

33. (Currently Amended) The method of claim 27 wherein determining the load characteristics includes generating a graphical representation of the load characteristics.

34. (Original) The method of claim 33 wherein the graphical representation is a topographical map of the network.

35. (Currently Amended) The method of claim 34 wherein the topographical map includes indicia of networks and the one or more network resources in the security system network.

36. (Currently Amended) The method of claim 33 further comprising determining costs of allocating the one or more network resources to the requests according to the graphical representation.

37. (Original) The method of claim 36 further comprising storing the costs in a matrix.

38. (Currently Amended) The method of claim 27 further comprising generating a set of rules according to preferences of the one or more users.

39. (Currently Amended) The method of claim 38 wherein allocating the network resources includes allocating the one or more network resources according to the set of rules.

40. (New) The resource manager of claim 1, wherein said controller assigns scores to the one or more devices according to the following weighted sum formula:

$$S_i = W_{nc} * NCost(src, i) \\ + W_{dpl} * DataPlacementRule(src, i) \\ + W_{load} * (W_{bw} * BW_i + W_{ds} * DS_i + W_{conc} * Conc_i);$$

wherein W_{nc} , W_{load} , W_{dpl} , W_{bw} , W_{ds} , and W_{conc} are weights, src denotes the media source, $NCost(src, i)$ denotes a value in a network proximity matrix, $DataPlacementRule(src, i)$ returns 0 if a candidate device i of the one or more devices is not listed in a data placement rule associated with the camera src and 1 if the device i is included in the rule, combination of BW_i , DS_i , and $Conc_i$ defines load on the candidate device i , BW_i denotes a ratio of available bandwidth and maximum bandwidth on device i , DS_i denotes a ratio of available disk space and maximum disk space on device i , $Conc_i$ denotes a ratio of available concurrency and maximum concurrency of the device i , and this weighted-sum formula produces a score value S_i for a candidate device i .

41. (new) The resource manager of claim 40, wherein said controller employs the scores assigned to the one or more devices to determine how to allocate the devices, and the weights are user configurable.